AN ECTOPIC (PELVIC) COMPLETELY FUSED (CAKE) KIDNEY ASSOCIATED WITH VARIOUS ANOMALIES OF THE ABDOMINAL VISCERA

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During the dissection of a male cadaver, about seventy years of age, many anomalies of the abdominal and pelvic viscera were found which, from the embryological and clinical standpoint, make the condition of more than passing interest.

The jejunum, ileum, and ascending and transverse cola were found to be suspended by a common mesentery, resembling very closely the mesentery of the fœtus after rotation of the gut and before descent of the cæcum. The root of the mesentery, instead of having a basal attachment of five inches or more, was attached for about two inches around the superior mesentery artery (Fig. 1). The duodenum possessed a short mesentery almost continuous with that of the jejunum.

After the removal of the intestines and the peritoneum from the posterior abdominal wall, both lumbar regions were searched for the kidneys. Having failed to find them in their normal position, our attention was directed to a rather large mass lying over the right sacro-iliac joint and extending into the pelvis which proved to be a completely fused (cake) kidney, nearly circular in outline, and possessing two distinct ureters, each measuring about five inches in length, and opening normally into the bladder. The anterior or ventral surface of the kidney showed marked lobulation but no indication of a separation into right and left portions. The ureters arose separately from this anterior or ventral surface from four extrarenal calyces, which united about one inch from the kidney. The posterior surface of the kidney was perfectly smooth and concave.

Further search failed to reveal a suprarenal gland on the right side, although a perfectly normal one was found in its normal position on the left side.

The left testicle was perfectly normal, both as to development and descent. The right testicle was lodged against the kidney in the right iliac fossa. The inguinal canal was examined and found to contain the processus vaginalis extending all the way from the abdominal (internal) inguinal ring to the bottom of the scrotum. Below the subcutaneous (external) inguinal ring this vaginal process was obliterated. The portion within the canal was patent and contained a small peritoneal sac, which communicated with the peritoneal cavity. A loop of the vas deferens was found throughout the entire length of the inguinal canal and behind the vaginal process. The proximal part of the loop was obliterated from its most distal point up to the testicle, although the distal portion was open and extended back up through the inguinal canal and downward and medially to the base of the prostate. The penis was rather infantile in character.

The kidney received its blood supply from three larger and several smaller arteries. The left renal artery arose from the lower end of the left common iliac artery while the middle renal artery came from the angle of bifurcation of the aorta. The right renal artery arose from the proximal part of the right common iliac artery. One large renal vein, composed of several tributaries, passed out of the anterior surface of the kidney and joined the lower end of the vena cava. Several smaller veins came from different portions of the kidney and joined the common iliac veins.

In all probability the fused type of kidney—either horseshoe, pancake or bean-shaped—is the result of failure in differentiation of the two primary mesenchymal masses from which the kidneys are developed.

Reports of completely fused kidneys are met with in the literature; but the frequency of this occurrence is not definitely known, as authors differ

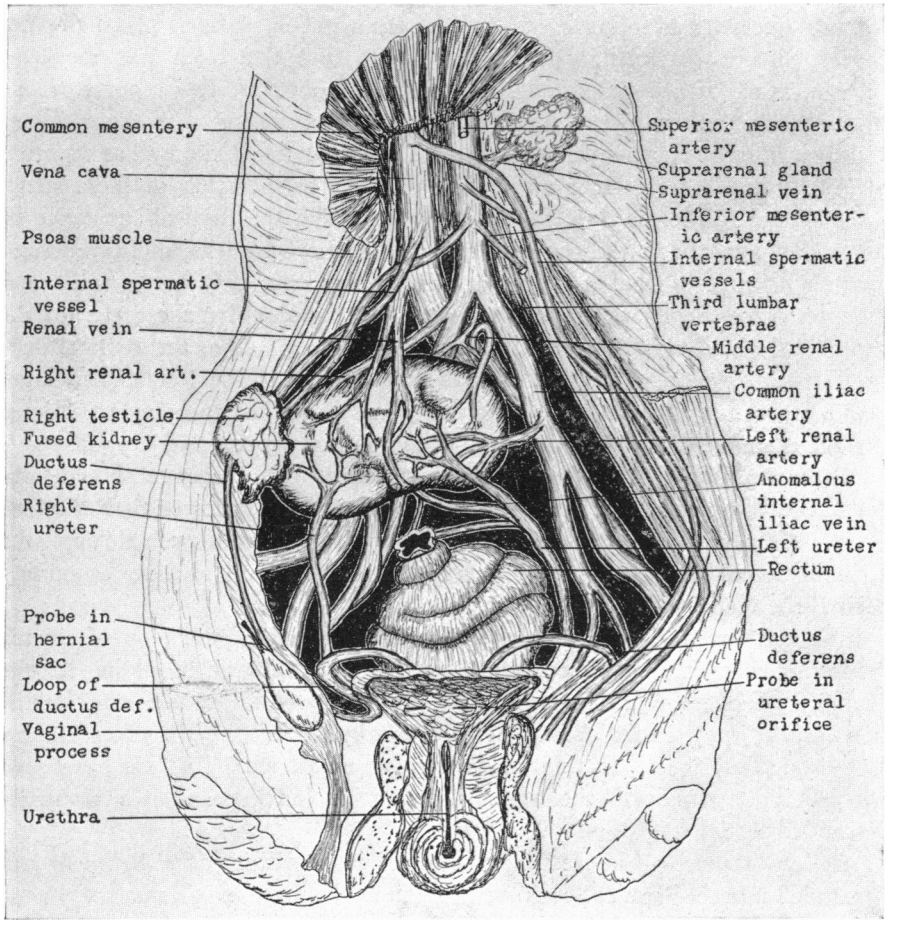

FIG. 1.—The intestines and a portion of the mesentery have been removed to show the other viscera. The ventral wall of the vaginal process has been dissected away to show the contained hernial sac. The anterior walls of the bladder and urethra have been cut away and the left testicle removed.

considerably in their tables of percentages. Lipshutz and Hoffman [1] state that the per cent. of fused kidneys is about 1 in 671. This figure is probably too high.

We are unable to offer any definite explanation as to why one or both kidneys may fail to ascend and remain in or near the pelvis. A number of different varieties of such kidneys are reported in the literature, among the most interesting of which are the cases of Cullen [2] and Polk.[3] These authors fail to offer any particular reasons for the occurrence of pelvic kidneys; but,

in all probability, the condition is purely accidental, resulting from some mechanical interference. We are not certain why kidneys ascend at all. It is obvious, however, that the kidney in the case herein reported was never any higher than its present position, since the ureters are short, and since its blood supply is derived from the arteries in the immediate locality.

The absence of one suprarenal gland is rather infrequent; and while we cannot state with absolute certainty that the right suprarenal gland did not develop in our specimen, we feel reasonably sure that such was the case, since no trace of a degenerated structure was found. A few reports of one suprarenal gland are to be found in recent articles dealing with this subject; and their absence is usually associated with single or fused kidneys, as reported by Abell [4] and others. It is no wonder that one or the other of these structures should fail to develop, for we may recall that the cortical substance of this gland appears in the cephalic end of the more or less undifferentiated mesonephric mesothelial tissue. As this tissue exists only for a while and then undergoes degeneration, it is reasonable to suppose that the cortex of the suprarenal gland also disappears in some instances. Also, the cortical substance may develop in isolated masses and its identity be lost as a distinct gland. The medullary substance of this gland is subject to many variations, since it is supposed to be of the same origin as the sympathetic ganglia.

It is uncertain just why the vaginal process in this specimen should have descended completely, as the testicle never proceeded any lower than the iliac fossa. However, we may recall that this process begins to push through the abdominal wall at about the third month of fœtal life; and, at a corresponding period, the testicle is in the iliac fossa.

We are unable to account for the partial descent of the loop of ductus deferens; nevertheless, the condition bears a close relation to sliding herniæ (usually of the cæcum and appendix) accompanying undescended testis. Eisendrath [5] states that sliding herniæ usually occur only in cases similar to the one described. In this connection we might state that we have seen two sliding herniæ of the sigmoid colon in individuals with normally descended testicles.

Cullen [6] reports an interesting case in a female whose round ligament had descended into the inguinal canal very much in the same manner as the ductus deferens had done in our specimen.

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[5] Eisendrath, Daniel N.: Undescended Testis. ANNALS OF SURGERY, vol. lxiv, No. 3, p. 324, September, 1916.

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